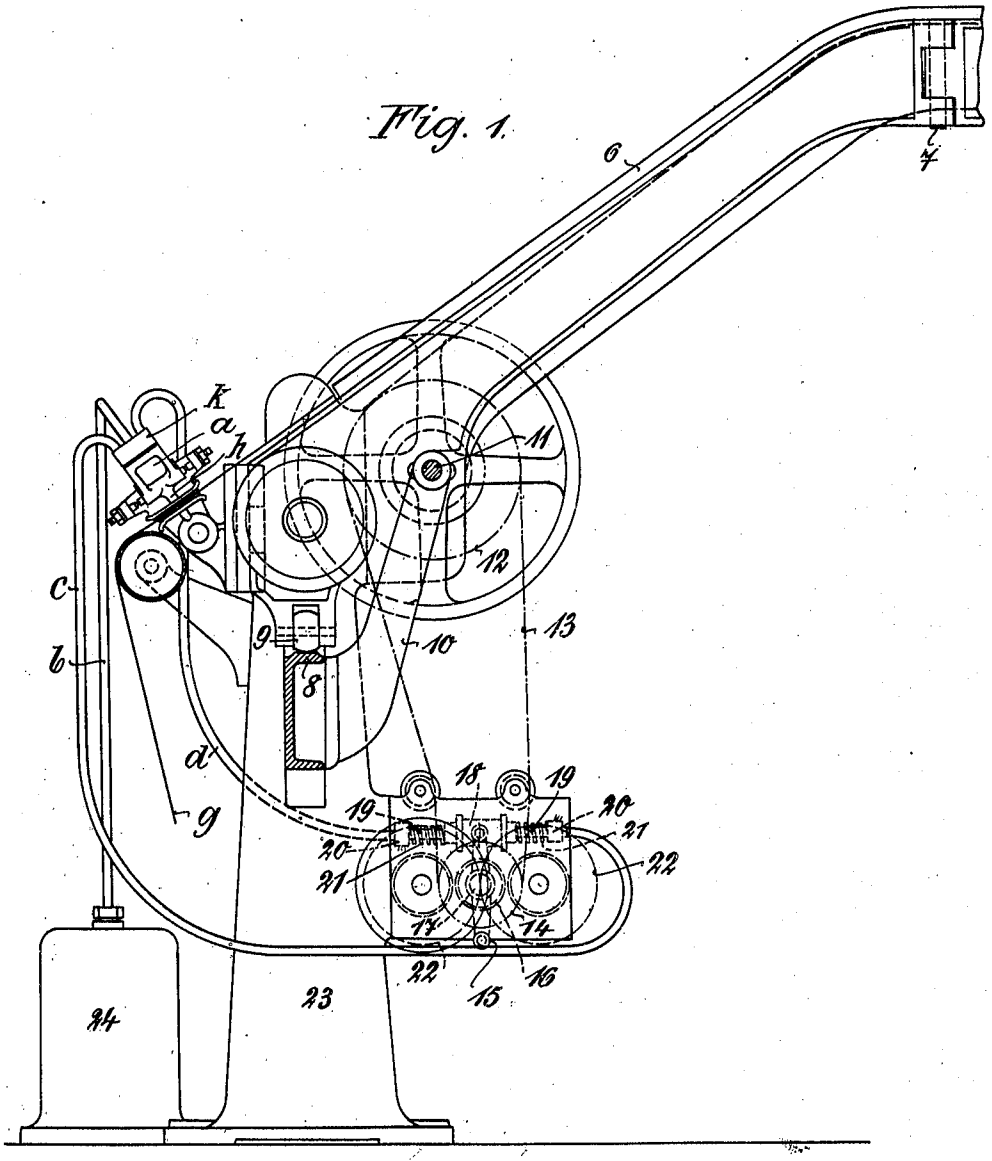
Jan. 25, 1927. 1,615,415

F. TANDEL

FABRIC FEEDING APPARATUS

Filed Sept. 24, 1923 3 Sheets-Sheet 1

Fig. 1.



Witnesses:
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Robert Shapiro.

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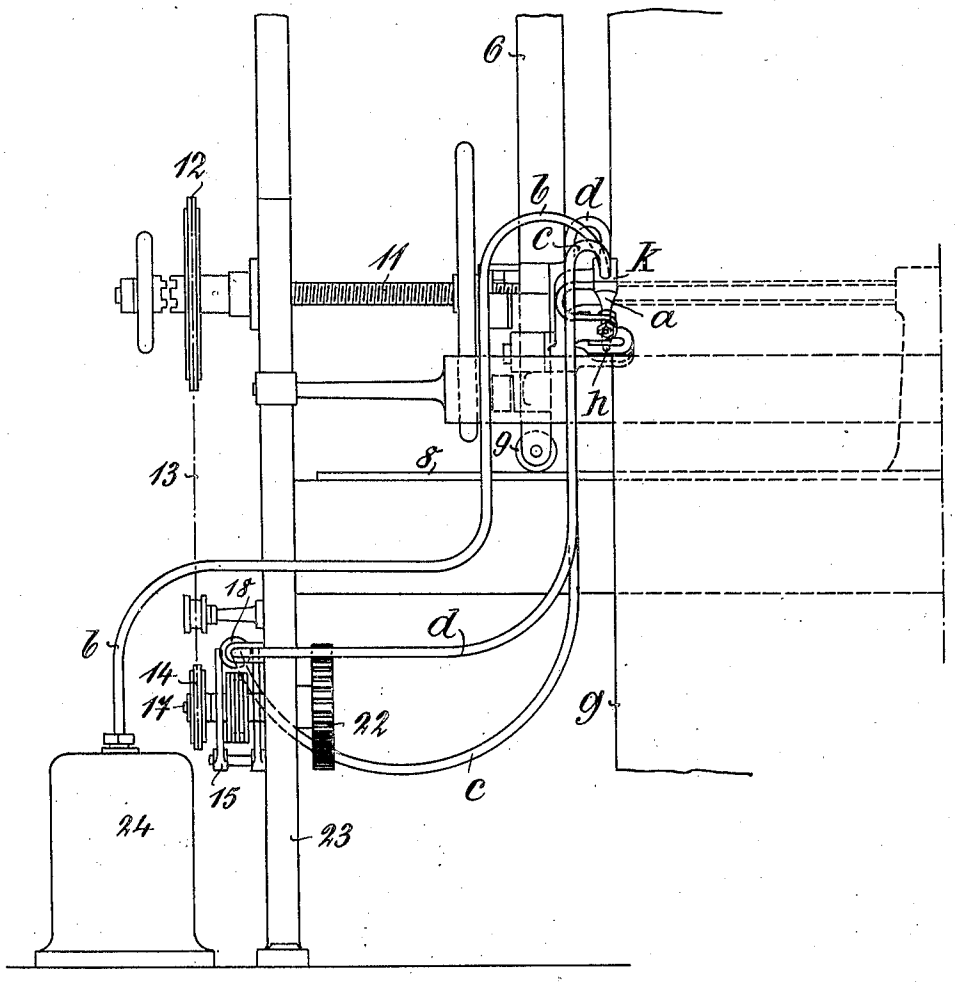
Jan. 25, 1927. 1,615,415

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FABRIC FEEDING APPARATUS

Filed Sept. 24, 1923 3 Sheets-Sheet 2

Fig. 2.



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Jan. 25, 1927. 1,615,415

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FABRIC FEEDING APPARATUS

Filed Sept. 24, 1923 3 Sheets-Sheet 3

Fig. 3.

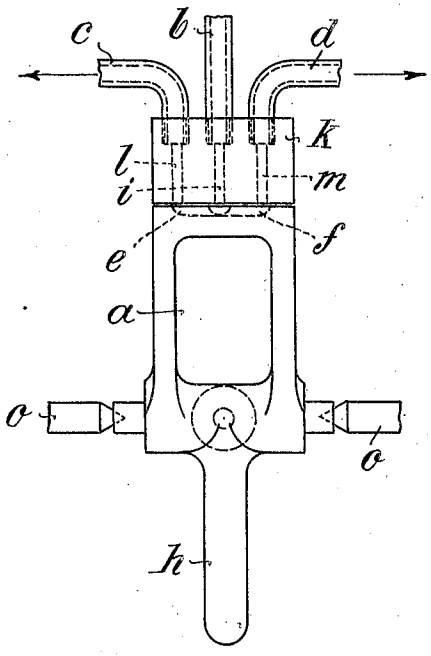


Fig. 4.

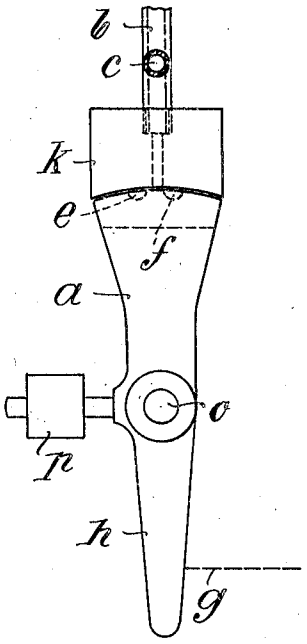


Fig. 5.

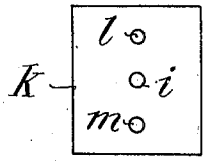


Fig. 6.

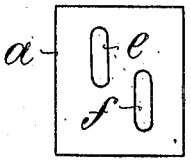
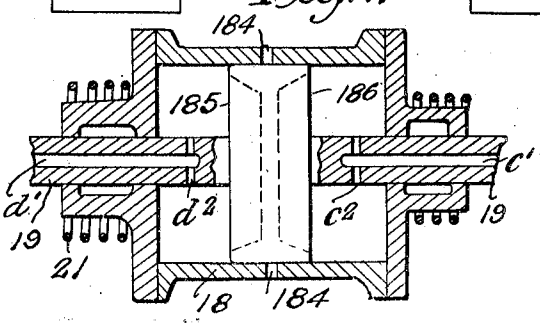


Fig. 7.



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UNITED STATES PATENT OFFICE.

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FABRIC-FEEDING APPARATUS.

Application filed September 24, 1923, Serial No. 664,446, and in Germany October 24, 1922.

My invention relates to improvements in fabric feeding apparatus, and more particularly in apparatus of the type comprising a feeler in contact with one of the margins of the fabric and adapted to operate pneumatic means for regulating the web feeding mechanism if the web or fabric moves to the side and out of its regular path. The object of the improvements is to provide an apparatus which is simple in construction and sensitive in operation, and with this object in view my invention consists in providing the feeler with a member formed with passages directly controlling the fluid supply pipes to an apparatus operating the regulating mechanism of the cloth feeding apparatus.

For the purpose of explaining the invention an example embodying the same has been shown in the accompanying drawings, in which the same reference characters have been used in all the views to indicate corresponding parts. In said drawings—

Fig. 1, is an elevation showing a part of a fabric feeding apparatus,

Fig. 2, is an elevation seen from the left in Fig. 1,

Fig. 3, is a detail view showing the feeler and a part of the pipes controlled thereby,

Fig. 4 is an elevation seen from the right in Fig. 3, and

Figs. 5 and 6, show respectively the cooperating faces of the feeler and the block connected with the fluid supplying pipes.

Figure 7 is a sectional view through a pneumatic motor which may be used in the apparatus.

For explaining the invention I have shown the same as used in a fabric feeding apparatus of known construction shown diagrammatically in Figs. 1 and 2, and comprising a guide arm 6 for the fabric mounted for rocking about a vertical pivot 7 and guided at its bottom on a rail 8, a roller 9 being provided on the arm 6 to reduce friction. The rail 8 is disposed on a pair of uprights 23 having a bracket 10 secured thereto, which bracket provides a support for a screw-threaded spindle 11 screwing in a part of the arm 6 for rocking the same in one or the other direction. To the spindle 11 a sprocket gearing 12 is keyed which is connected by a chain 13 with a sprocket gearing 14 mounted on a rockable frame 15 and having a spur gearing 16 keyed to its spindle 17. The frame 15 is connected with a pneumatic cylinder 18 having a supply of pressure to opposite ends and enclosing a piston the rod 19 of which is secured at opposite ends to relatively fixed eyes 20, springs 21 being interposed between the eyes and the end faces of the cylinder 18 for normally holding the cylinder in its median position. By admitting pressure fluid to one or the other end of the cylinder 18 the frame 15 is rocked either to the right or left. Thereby the spur gearing 16 is thrown into engagement with either one of spur gears 22 rotating in opposite directions, so that the spur gearing 16 and the spindle 11 are rotated either to the right or left and the arm 6 is rocked accordingly. Pressure or suction fluid is supplied to the cylinder 18 through pipes *d* and *c* according as positive or negative pressure is employed. So far the mechanism is known in the art and the brief description will be sufficient to give a clear understanding to those skilled in the art. I wish it to be understood that the mechanism has been described by way of example in order that the controlling mechanism now to be described may be clearly understood.

The controlling mechanism is shown in detail in Figs. 3 to 6. It comprises a block *k* formed with bores *i*, *l*, and *m*. The bore *i* communicates through a pipe *b* with the pressure fluid supply 24, and the bores *l* and *m* communicate respectively through the pipes *c* and *d* with the opposite ends of the cylinder 18. Below the block *k* the feeler *h* is mounted between point bearings O, and it forms a part of a block *a*. The top face of the block *a* and the bottom face of the block *k* are cylindrical in form, the axis of the cylinder coinciding with that of the point bearings O, O, and the said faces are slightly spaced from each other in order to avoid friction of the parts moving relatively to each other. The block *a* is provided at its top face with two grooves *e* and *f* spaced from each other and extending from the middle of the face to opposite sides and adapted to establish communication between the median bore *i* and the outer bores *l* and *m* respectively. The relative positions of the grooves *e* and *f* and the bores *i*, *l* and *m* appears from Figs. 5 and 6. The feeler *h* carries a weighted body *p* holding the same in contact with the web or fabric *g*.

The operation of the apparatus is as fol-

lows: As long as the fabric *g* travels in the correct way the feeler *b* is in the median position shown in Fig. 4 in which the bore *i* and the supply pipe are disconnected from both bores *l*, *m* and pipes *c*, *d*, the bottom end of the bore *i* being located between the grooves *e* and *f*. If now the web *g* is moved out of its regular path, say to the left in Fig. 4, the feeler *h* is rocked to the left and the block *a* to the right, so that the groove *e* establishes communication between the bores *l* and *i*. Therefore pressure fluid is admitted to the right hand end of the cylinder 18, and the regulating mechanism is operated in the manner known in the art, until the fabric is again in correct position. Thereby the feeler *a*, *h* is returned into the position shown in the figures in which none of the pipes *c* and *d* communicate with the pressure fluid supply.

Figure 7 shows a longitudinal section through the cylinder 18. It will be observed from this view that the hollow piston rods 19 which communicate respectively with conduits *d* and *c* have the channels d^1, c^1 thereof, opening through ports d^2 and c^2 into the cylinder. When pressure is applied through conduit *d*, cylinder 18 moves to the left against the tension of spring 21, the air compressed in the space at the right of piston 181 escaping through the stuffing box on this side. The cylinder may be provided with opening 184 and the piston with aprons 185, 186 in order to relieve the pressure after the gears have been properly engaged. Of course, when pressure is applied through the conduit *c*, channel c^1 and ports c^2, the cylinder 18 will move to the right until the openings 184 have been uncovered by the piston.

I claim:

1. In a web feeding apparatus, web feeding mechanism, regulating means therefor adapted to maintain the web in side register, comprising operating means adapted to be operated by fluid pressure and valve means controlling the supply of fluid pressure to said operating means comprising a block formed with a plurality of ports opening through one face thereof and a relatively movable member formed with recesses adapted to connect certain of said ports when moved in one direction from a normal position and to connect certain other of said ports when moved in the opposite direction, said block and member having a slight clearance therebetween whereby friction is eliminated, and means engaged by the web for moving said movable member in one direction or the other according as the web deviates from one side to the other of said predetermined path.

2. In a web feeding apparatus, web feeding mechanism, regulating means therefor adapted to maintain the web in side register comprising operating means adapted to be operated by fluid pressure and means controlling the supply of fluid pressure to said operating means comprising a block having a lower cylindrically curved face and formed with three aligned conduits, the central one of which communicates with a source of fluid pressure and the two lateral ones of which communicate with said operating means and a pivoted member having a curved face opposed to the curved face of said block, there being a slight clearance between said faces, said pivoted member being formed with recesses in its curved face adapted to place the source of fluid pressure in communication with one or the other of said lateral conduits according as said pivoted member is moved to one side or the other of a normal position, said pivoted member having a depending arm adapted to engage the edge of the web.

3. In apparatus of the kind described, web feeding mechanism, regulating means therefor adapted to maintain the web in side register, comprising fluid pressure operated means, and valve means controlling the supply of fluid pressure to said means comprising a block formed with a plurality of ports opening through one face thereof and a relatively movable member formed with a recess adapted to connect certain of said ports when moved in one direction from its normal position, said block and member having a slight clearance therebetween, and means engaged by the web for moving said movable member when the web deviates from said predetermined path.

4. In apparatus of the kind described, web feeding mechanism, regulating means therefor adapted to maintain the web in side register comprising fluid pressure operated means and valve means controlling the supply of fluid pressure to said operating means comprising a block formed with a segmental cylindrically curved face and having a plurality of ports opening at said curved face, and a pivoted feeler adapted to be engaged and operated by said web and having a curved face formed therein with recesses adapted to connect certain of said ports when the feeler is operated in one direction and certain other of said ports when operated in the other direction, there being a slight clearance between the curved faces of said block and feeler.

5. In apparatus of the kind described, web feeding mechanism, regulating means therefor adapted to maintain the web in side register comprising fluid pressure operated means and valve means controlling the supply of fluid pressure to said operating means comprising a block formed with a segmental curved face and having a plurality of ports opening at said curved face, and a pivoted feeler adapted to be engaged and operated by said web and having a segmental curved face formed therein with recesses adapted to connect certain of said

ports when the feeler is operated in one direction and certain other of said ports when operated in the other direction, there being a slight clearance between the curved faces of said block and feeler.

6. In a web feeding apparatus, the combination, with the feeding mechanism, and regulating means therefor adapted to hold the web in side register and comprising operating means adapted to be operated by pressure fluid in one or the other direction, of a pressure fluid supply, two tubular members connected with said operating means for supplying pressure fluid thereto for operation of the regulating means in one or the other direction, a fluid supply, a block having ports communicating with said fluid supply and tubular members, a rockable feeler adapted for engagement with the fabric being fed, said block and feeler having cylindrical faces concentric relatively to the fulcrum of the feeler, said ports opening through said faces, and said feeler being formed with passages adapted to connect said fluid supply with either one of said tubular members.

7. In a web feeding apparatus, the combination, with the feeding mechanism, and regulating means therefor adapted to hold the web in side register and comprising operating means adapted to be operated by pressure fluid in one or the other direction, of a pressure fluid supply, two conduits connected with said operating means for supplying pressure fluid thereto for operation of the regulating means in one or the other direction according as one or the other of said conduits is supplied with fluid pressure, a fluid supply, a block having ports communicating with said fluid supply and conduits, a rockable feeler adapted for engagement with the fabric being fed, said block and feeler having spaced cylindrical faces concentric relatively to the fulcrum of the feeler, said ports opening through said faces, and said feeler being formed with passages adapted to connect said fluid supply with either one of said conduits.

In testimony whereof I hereunto affix my signature.

FRITZ TANDEL.